REMARKS/ARGUMENTS

Favorable reconsideration of this application is respectfully requested.

Claims 12-15, 18, and 23-40 are currently pending. Claims 1-11, 16, 17, and 19-22 have been canceled.

Applicants note that new independent Claims 23, 25, 31, and 34 have been added to clarify the difference between the present invention and the cited documents. Applicants further note that new independent Claim 23 finds support in original Claim 1 considered with original Claim 10 and that original Claim 10 provides further support for new Claim 31. Support for new Claim 25 appears in original Claims 1, 4, and 10 while support for new Claim 34 appears in original Claim 17. Clearly, no new matter has been introduced.

On page 3 of the previous Official Action dated December 16, 2004, Claims 1-2, 4, 7, 10, 16-17, and 19-20 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Applicants respectfully traverse the rejection of Claims 1, 4, 7, 10, 16-17, and 19-20 under 35 U.S.C. §112, second paragraph insofar as it may be considered to be relevant to new independent Claims 23, 25, 31, and 34 as well as to claims that depend thereon.

The rationale applied in the Action of December 16 was that the term "substantially" renders the claims indefinite because the claims include elements not actually disclosed (those encompassed by "substantially").

However, as noted at page 7, lines 13-19 of the response filed March 16, 2005, the term "substantially" is not believed to render any of the claims indefinite because the recitation of "substantially no interference" simply avoids the implication of "absolutely zero interference," i.e., prevents avoidance of infringement by minor changes that do not affect the results sought and accomplished (see page 31, lines 18-23 in the specification). Accordingly,

it is submitted that Claims 12-15, 18, and 23-40 cannot be considered to be indefinite in light of the specification explanation of "substantially."

On pages 3-7 of the previous Official Action dated December 16, 2004, Claims 1, 4, 6-9, 17, and 19 were rejected under 35 U.S.C. §102(e) as being anticipated by Molnar et al. (U.S. Patent No. 6,694,154 B1). Applicants respectfully traverse the rejection of Claims 4, 17 under 35 U.S.C. §102(e) as for this rejection can be said to apply to new Claims 25 and 34.

The December 16 Action urged that Molnar et al. discloses a scheduling processing unit that allocates a plurality of frame configuration information each indicating a frame configuration of a respective time division multiplexed frame to corresponding ones of the time division multiplexed frames respectively. More specifically, this previous Action related the plurality of frame configuration information of the present invention to a plurality of cells of Molnar et al. (see page 5, line 6-7 in the previous Action).

Applicants submit that Molnar et al. does not disclose the plurality of cells in each supercell in a TDMA frame format. Accordingly, Applicants submit that the rejection of new Claims 25 and 34 as anticipated by Molnar et al. under 35 U.S.C. §102(e) would be improper at least for the above reason.

On pages 8-13 of the previous Official Action dated December 16, 2004, Claims 2-3, 5, 10-11, 16, and 20 were rejected under 35 U.S.C. §103(a) as being unpatentable over Molnar et al. in view of Patterson et al. (U.S. Patent No. 5,736,959).

Applicants respectfully traverse any actual or implied rejection of Claims 1, 4, 10, 17, and 20 under 35 U.S.C. §103(a) as far as it can be said to apply to new Claims 23, 25, 31, 34, and 36 that correspond thereto.

The above-noted previous Action stated that the invention would result from combining that the interference-rejection-combining receiver of the base station of Molnar et

al. with the teaching of the supercell formation in Patterson et al. relative to the radio base station, the frame configuration method, and the computer usable medium associated with the subject matter of these claims.

Applicants submit, however, that Molnar et al. and Patterson et al. fail to teach or suggest allocating entire frame configuration information indicating frame configurations of all the time division multiplexed frames, to one of the time division multiplexed frames, as cited in new independent Claims 23, 31, and 36. Applicants further submit that Molnar et al. an Patterson et al. fail to teach or suggest allocating a plurality of frame configuration information each indicating a frame configuration of a respective time division multiplexed frame, to corresponding ones of the time division multiplexed frames respectively, as cited in new independent Claims 25, 34, and 36.

The present invention focuses on a radio base station and a frame configuration method capable of making communication bandwidth allocations to respective radio terminals variably at a time of carrying out radio communications with respect to a plurality of radio terminals by adopting both a TDMA scheme and a SDMA scheme (see page 2, lines 19-25).

In order to achieve the above function, it is disclosed, for example, that the radio base station 10 comprises a plurality of antenna elements 12, a transmitting multi-beam formation circuit 1003 and a scheduling processing unit 1012. The antenna elements 12 are connected to the transmitting multi-beam formation circuit 1003. The transmitting multi-beam formation circuit 1003 is connected to the scheduling processing unit 1012, and forma a plurality of space dividing beams simultaneously by using time division multiplexed frames scheduled in the scheduling processing unit 1012. The antenna elements 12 transfer signals of the time division multiplexed frames with respect to a plurality of radio terminals 20 by

transmitting the plurality of space dividing beams toward the radio terminals 20 (see page 6, line 34 – page 7, line 33 – page 9, line 3 – page 11, line 10 and FIGS. 1 and 2, for example).

The scheduling processing unit 1012 allocates communication bandwidths to the radio terminals 20 such that there is substantially no mutual interference among those signals to be transferred by different frames. Then the scheduling processing 1012 allocates a plurality of frame configuration information to corresponding ones of time division multiplexed frames respectively or allocates entire frame configuration information to one of time division multiplexed frames, thereby schedules the time division multiplexed frames to be used in the transmitting multi-beam formation circuit 1003 (see page 12, line 13 – page 29, line 27 and FIGS. 7-20B, for example).

Here, it should be noted that the frame configuration information indicates a frame configuration (bandwidth allocation) of a respective time division multiplexed frame, more specifically, allocated positions where the communication bandwidths are allocated to the respective time division multiplexed frame. Also, it should be noted that the entire frame configuration information indicates frame configurations (bandwidth allocation) of all time division multiplexed frames, more specifically, allocated positions where the communication bandwidths are allocated to the time division multiplexed frames (see page 12, line 30 – page 13, line 3, for example).

Therefore, the radio base station 10 provides communication bandwidths to be allocated to respective radio terminals variable by adopting both the TDMA scheme and the SDMA scheme, because the (entire) frame configuration information compensates the allocated positions even if the communication bandwidths are variably changed.

On the other hand, as the above-noted previous Action indicates, Molnar et al. fails to teach or suggest allocating the entire frame configuration information indicating the frame configurations of all the time division multiplexed frames, to one to one of the time division

multiplexed frames. Also, Molnar et al. fails to teach or suggest allocating the plurality of frame configuration information each indicating the frame configuration of the respective time division multiplexed frame, to corresponding ones of the time division multiplexed frames respectively.

Patterson et al. discloses a supercell 24 that comprises of nine cells where each cell 26 is assigned to one of nine equal time slots with full frequency allocated within each cell 26. Here, it should be noted that the cell 26 does not indicate allocated positions where communication bandwidths are allocated to the time division multiplexed frame(s) because the supercell 24 is one of about 20,000 supercells formed mapping the Earth's surface into an Earth-fixed grid 20 and the time slots do not variably change (see col. 14, lines 35-38 – col. 18, line 42 – col. 19, line 3 and FIGS. 3a, 3b, and 9b, for example). Therefore, Patterson et al. fails to teach or suggest allocating the entire frame configuration information indicating the frame configurations of all the time division multiplexed frames, to one of the time division multiplexed frames. Also, Molnar et al. fails to teach or suggest allocating the plurality of frame configuration information each indicating the frame configuration of the time division multiplexed frames respectively.

As a result of the above, even if the teachings of Molnar et al. and Patterson et al. were to be combined in terms of combining the interference-rejection-combining receiver of the base station of Molnar et al. with the teaching of the supercell formation in Patterson et al., the combination would not teach the subject matter of the present invention, because Molnar et al. and Patterson et al. fail to teach or suggest compensating the allocated position where the communication bandwidths are allocated to the time division multiplexed frame(s).

In view of the foregoing remarks, it is respectfully submitted that new independent Claims 23, 25, 31, 34, and 36 all clearly patentably define over Molnar et al., in view of Patterson et al. Applicants further respectfully submit that new Claims 24, 26-30, 32, 33, 35,

and 37-40 also patentably define over these references by virtue of their dependency from Claims 23, 25, 31, and 34, respectively.

On pages 2-3 of the outstanding Official Action dated July 26, 2005, Claims 12 and 15 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Pages 3-7 of the outstanding Action rejected Claims 12-14, and 21 as being unpatentable over Patterson et al. in view of Spinar et al. (U.S. Publication No. 2002/0080816) and Claims 18 and 22 as being obvious over Monar et al. in view of Spinar et al.

With regard to the §112 rejection of Claims 12 and 15, the outstanding Action states that "it is not clear" as to what "a total sum of allocated communication bandwidths" is comparing to when "a total sum of allocated communication bandwidths is smaller" as cited in the last line of Claim 12.

Applicants have amended Claim 12 to clarify what "a total sum of allocated communication bandwidths" is comparing to. When there is a difference between total sums of the communication bandwidths allocated to the time division multiplexed frames, the step (a) allocates a next communication bandwidth to a frame for which a total sum of allocated communication bandwidths is the smallest among the time division multiplexed frames (see page 27, line 33 – page 28, line 19 of the specification and FIGS. 19, 20A, and 20B, for example).

The outstanding Action further states that "it is not clear as to what the range of values is in order for the total sums of the communication bandwidths will be considered to be 'small'" as in Claim 15.

Applicants have amended Claim 15 to clarify what the range of values is in order for the total sums of the communication bandwidths will be considered to be "small." When the

difference between the total sums of the communication bandwidths is less than or equal to the prescribed threshold, the step (a) regards the total sums of the communication bandwidths as identical (see page 24, lines 16-31 of the specification and FIG. 16, for example).

Accordingly, Applicants submit that amended Claims 12 and 15 clearly overcome the rejection under 35 U.S.C. §112, second paragraph and that this rejection should be withdrawn.

Turning to the rejection of Claims 12-14 and 21 under 35 U.S.C. §103(a) as being unpatentable over Patterson et al. in view of Spinar et al. (U.S. Publication No. 2002/0080816). Applicants note that the rejection of Claim 21 is considered to be moot as this claim has been canceled. Applicants further note that Spinar et al. does not cure the deficiencies noted above as to Patterson et al. and Molnar et al. Accordingly, as these claims all ultimately depend from Claim 31, they are considered to be patentable by virtue of their dependency from Claim 31 as discussed above.

With further regard to the rejection of Claims 18 and 22 as unpatentable over Molnar et al. in view of Spinar et al., Applicants note that the cancellation of Claim 22 renders its rejection moot. With further regard to Claim 18, Applicants note that Spinar et al. does not cure the deficiencies noted above as to Molnar et al. Accordingly, Applicants respectfully submit that Claim 18 should be considered to patentably define over the applied references for the same reason as parent Claim 34.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance, and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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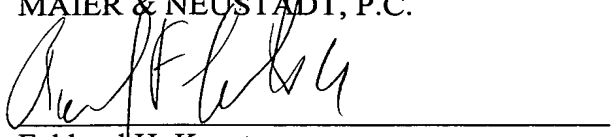

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